Alberta Education Guide:

Personally-Owned Devices

INSPIRING STUDENTS'

- engaged thinking
- deep learning
- ethical citizenship and,
- entrepreneurial spirit

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"Learning is complex work and like other forms of skilled and technical work it requires that the person performing the job understand and be comfortable with his or her tool set.

Within my own classroom I have seen learning improve as students utilize their own devices; tools that they are comfortable with, have personalized, have invested time into in terms of learning how to operate and maintain. Students can often use their tools to access information or communicate their own learning in a much more sophisticated way than forcing them to utilize a standard set of school owned and maintained tools that they may or may not be as familiar with. Students are also adept at utilizing their own devices in creative ways that we have not considered with our school-owned tools such as one project for my humanities.

-Alberta Teacher, 2011

"Contrary to most assumptions, youth's online social activities are not devoid of substantive intellectual activity. A survey from the National School Boards Association (2007) reported that students' online sharing in social network sites involves education and learning."[2]

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The guide

Letter from the Minister

Personally-Owned Devices

The Big Idea

Allowing students and staff to bring their own mobile personally owned devices (PODs) for use in the classroom has been steadily gaining popularity and acceptance amongst policy leaders, administrators, teachers, and communities in Alberta and beyond. The May 2010 *Speak Up Report* from Project Tomorrow found that overall district administrators, principals, and teachers recognize the value of using PODs for learning.[3] Forward-thinking schools recognize that these devices, which students and staff use every day for personal use, if properly included as part of instructional activities, could also be used for learning. Most jurisdictions adopted the policy out of fiscal necessity, after realizing that provisioning a device for each student from public funds was not feasible in the short-term, nor sustainable in the long term.

Factor in the widespread availability and suddenly the idea of allowing or even requiring students to bring these devices to school becomes much more appealing. However, as John Traxler accurately notes, it is easy to say that education should embrace PODs, but not easy to say how.[4] This guide provides some insights that are emerging from jurisdictions that are first to invite student–owned devices into their schools.

Personally-owned devices: A Definition

The terms *personally-owned devices (PODs)* and *mobile devices* are generally used interchangeably throughout this guide. The terms refer to student-owned or staff-owned technologies including cellular phones, blackberry type devices, PDAs, MP3 players, iPod/iPhone type devices, and portable computers such as laptops, notebooks, tablets, iPADs, and netbooks.

Mobile learning, as defined in this paper, involves the use of wireless enabled, mobile digital devices (WMDs) in both formal and informal learning environments or contexts. See the three technology trends on the following pages.

Empowering students and staff to turn on their personally owned devices (PODs) in both formal as well as informal educational settings changes the landscape of learning. With the immediate ubiquity of access this policy brings to schools, teachers and students can, often for the first time, count on access 24 hours-per-day, 7-days per week (24/7). That enables teachers to embed the innovative uses of technology in lesson design, confident that all students will have access. It also sends a strong message to students that their personal devices can be used as powerful learning devices. Used wisely, this approach could extend learning from the formal learning environment to the informal, out-of-school (or out-of-classroom) environment.

The devices offer opportunities for personalized, interactive, and multimodal learning that could serve to motivate and engage students in ways never before possible. These benefits have significant pedagogical, curricular, technological, and policy implications. They will require new approaches to teaching and learning. Incorporating these devices into the curriculum will require "a paradigm shift"[5] on behalf of all – educators, students, parents, and community – involved. Not a trivial endeavor, and one that will take time, but according to Alberta educators, one that is worth the investment.

Why did jurisdictions open their schools and classrooms to PODs?

Schools in Alberta have been exploring the use of PODs for up to five years. Typically the pioneering jurisdiction originally piloted one-to-one laptop learning, found it of value, but realized that it was not fiscally feasible to expand to all students, nor was it sustainable in the long-term. That said, many jurisdictions are now realizing the unanticipated advantages are many:

- The student who brings his/her own device into the school is often more likely to take good care of a device he/she owns versus a device the school owns.
- The student who learns with a POD is more likely to continue the learning started on the device in school into the informal, after school hours. If he/she has access 24/7, the device is always accessible to continue and expand schoolwork.
- In schools where the PODs are agnostic, the student quickly learns that he/she is responsible for knowing his/her own device and using its feature set to accomplish learning goals and completing assignments and projects. Thus, the teacher is not expected to, step-by-step, explain the technical processes, but rather concentrates on the learning.
- The device becomes invisible, secondary to the learning. Students gain technological expertise as they
- The student is responsible for submitting their assignments in specific formats (e.g., PDF, .mov, xlsx, etc.) as required by teachers, thus taking responsibility for file conversions necessary. This advances their digital literacy regarding file transfer.

Jurisdictional Approaches to PODs

The jurisdictional policies in Alberta that govern PODs vary, but generally fall into four categories:

1. Limiting PODs to a specific brand/model of device (e.g., Dell 8000, etc.)
2. Limiting PODs to those that meet specific technical specifications (e.g., windows 2.0, Mac OS, etc.)
3. Limiting PODs to those with specific functionality (e.g., run Flash, etc.)
4. Accepting all PODs, provided they are Internet-ready

The policies that are established as to which devices are acceptable as PODs, in turn, impact what teachers and students can do with PODs in the classroom. (See sections 2 and 6 for insights into policy.)

Purpose of this Guide

The purpose of this guide is to provide Albertan jurisdictions with a guide to seamless, effective uses of PODs for learning. The POD Guide intends to focus on issues that arise as a result of the use of personally owned devices in schools. Within the guide, it is necessary to provide a learning context through the discussion of generally, learning with any mobile device, school-owned or personally-owned. The intent is not to focus on whether or not the schools should permit students to bring PODs for use in the classroom, but rather on following questions:

1. To what extent can diverse personally-owned devices advance learning through increased participation in deep learning, personalization of learning for all, and increased-as well as diversified-productivity (e.g., learner interactivity, encouraging collaboration, supporting communication, inspiring reflection and interest, and providing pedagogically rich learning environments that engage and motivate the learner)?
2. What are the key pedagogical considerations in integrating PODs into the classroom?
3. What are the key technological considerations to implementation?
4. What are the policy considerations in integrating PODs in schools?
5. What are the questions a school jurisdiction should ask in getting started with PODs?

This Guide examines these issues and looks at the risks, challenges, and implications, as well as potential opportunities and benefits that arise when schools allow students and staff to use personally-owned devices in the classroom and school environments. Included as well are tips, techniques, and strategies for addressing the speed bumps and managing the risks.

Tech Trends

From a technological perspective, recent trends in affordable, high functionality devices, cloud computing, and online, collaborative environments are driving changes in the way people live, work and learn. Five key trends from those identified in the 2010 and 2011 Horizons Report K12 together indicate that seamless, 24/7 electronic access from learning from student-owned devices is viable technologically.

Mobiles (i.e., wireless mobile device) have become affordable and provide users with 24-hours-per-day, 7-days-per-week access to ideas, resources, people, and communities. A single person may use different devices depending on the person's needs. The devices fall into six basic categories, and all represent personally owned device that may show up in classrooms:

- *Laptop computers* are portable computers that can be used with or without the Internet
- *Netbook computers and thin clients* are portable computers that gain most of their functionality through the Internet
- *Smart phones/handhelds* blur the lines between the Internet and cellular networks, (e.g., Blackberries, Android, iPhone, iTouch, PDAs, etc.)
- *Tablet computers fall along a continuum from laptop-like to large size smartphones (e.g.,* iPad, Android tablet, etc.)
- *Ebook readers (Kindle, iPad, etc.)*
- *Audio MP3 Players (iPod, etc.)*

Cloud computing is the expansion of local networks into a system of networks that include high capacity computing resources, storage in data farms, a range of computer applications, and opportunities for collaboration and connections. The three types of services associated with cloud computing are:[i]

- *Single function end-user services* such as gmail (http://gmail.com), google documents (http://docs.google.com), or Flickr for storing and browsing collections of images (http://www.flickr.com).
- *Networking infrastructure* with no end-user services, but rather the platform upon which an entity might build such applications (e.g., Google App Engine (http://code.google.com/appengine), or Heroku (http://heroku.com).
- Computing resources without a development platform (e.g., GoGrid (http://www.gogrid.com) or Amazon's Elastic Compute Cloud (http://aws.amazon.com/ec2/)).

Online, collaborative environments are virtual meeting places for community interactions. The types of environments include:

- *Ad hoc environments* that bring communities of interest together temporarily. The Web 2.0 tools to do so might include backchannels through Twitter, threaded conversations, chats on Webinars or other platforms, discussions through VoiceThread, etc.
- *Social networking* sites where users interact by establishing profiles, friending, messaging, joining groups, sharing documents, etc. (e.g., Facebook, Ning, Flickr, TakingItGlobal, YouTube, etc).
- *Collaborative projects* that enable schools to interact with other schools around learning units (e.g., iEARN, Global School House, Web-based Inquiry Science (WISE), etc.

Section 1: POD Models

Just as varied as the type of devices that students bring into classrooms through POD programs are the policies that jurisdictions establish to direct and manage the use of PODs in their schools, while leveraging the devices for learning, and providing safe learning environments for students.

The four categories of POD policies that govern use in schools include:

1. Limiting PODs to a specific brand/model of device (e.g., Dell Latitude 2120, etc.)
2. Limiting PODs to those that meet specific technical specifications (e.g., windows 7, Mac OS X, etc.)
3. Limiting PODs to those with specific functionality (e.g., ability to run Flash, etc.)
4. Accepting all PODs, provided they are Internet-ready

The table below provides the impetus, pros and cons, and policy considerations for each of the four categories:

POD Policy	Impetus	Pros	Cons	Policy considerations
Limiting PODs to a specific brand/model of device (e.g., iPAD, iTouch, Dell Latitude 2120, etc.)				
Limiting PODs to those that meet specific technical specifications (e.g., windows 7, Mac OS X, etc.)				

POD Policy	Impetus	Pros	Cons	Policy considerations
Limiting PODs to those with specific functionality (e.g., ability to run Flash, etc.)				
Accepting all PODs, provided they are Internet-ready				

Included below are two sample policies for each of the four POD policy types.

(Need samples from jurisdictions.

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Section 2: Pedagogy 2.0

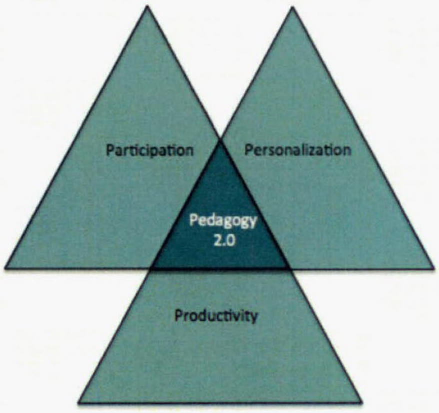
The engagement of students in learning through the use of the student-owned devices depends on the nature of the assignment, the degree to which the assignment is student-centered, and the nature of the scaffolding the teacher provides to the student throughout the process.

Students today live in a networked world where they have real-time access to ideas, people, resources, and communities 24-hours-per-day, 7-days-per week (24/7). There is no turning back. If educators are to build a learning environment that advances the 3Es (engaged thinker, ethical citizen, entrepreneurial spirit) and the six core values of opportunity, fairness, citizenship, choice, diversity, and excellence, they will need to leverage technology.

In many ways, students are already creating their own learning systems quite naturally by using the Internet and cellular technologies in their daily lives. For those with devices, their learning is already highly personalized, highly participatory given the volume of daily texting and instant messaging, and – due to the ready access to audiences for Facebook, YouTube, blogs, Twitter, and Flickr – highly productive.

Personal interests, individual perspectives, and available access drive students' informal learning to tools and networks–true personalization of learning. Their formalized learning in schools should tap into such personalization. Research indicates that it increases engagement and deep learning tremendously. Due to the social nature of youth, their informal learning happens most often through interactive participation through online communications, collaborations, and communities. Such participation is on a continuum ranging from short bursts of communication at one end, to highly intensive collaborations in tightly knit communities on the other. The result of student participation in highly interactive environments often result in student expressing themselves through individual and group products and compositions. YouTube, Flickr, Facebook, and other social media offer extensive opportunity for audiences to view, interact with, and react to student productivity.

Figure 1: Avenues for Learning with Personally-Owned Devices[ii]



Pedagogy 2.0 represents an approach to teaching and learning that serves as a model and filter for the ways in which students' devices are used. As educators seek to develop students as engaged thinkers, ethical citizens, and entrepreneurs, they move toward more student-centered learning, facilitating student choice, collaboration, and creativity. The result is students who are more engaged, adaptable, and flexible, able to guide their own learning as they use contemporary technologies ethically and innovatively.

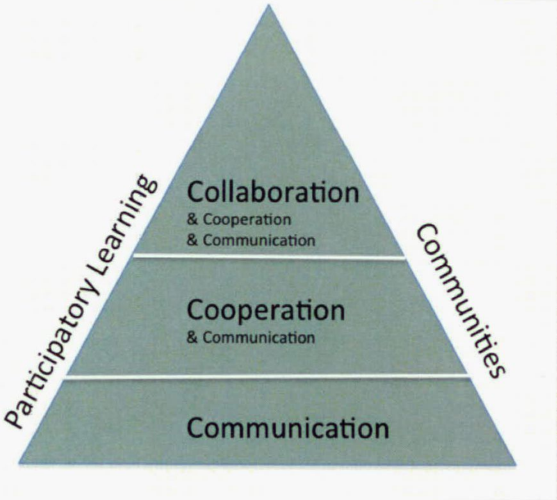
Mobile devices serve as extraordinary tools for personalization, participation, and productivity – three high tech avenues to the student centered learning required if students are to achieve the 3E's. Each should not be taken as independent of the others, rather seen as overlapping and intertwined.

Participation

Participation represents the social interactions students have when learning.

The evolution of Web 2.0 tools has been all about interactivity – ways to connect friends and family, peers, teachers, experts, and communities with persons of similar interest – 24 hours a day, 7 days a week.

The resultant culture of collaboration builds on interactions and communities of interest on three levels: collaboration, cooperation, and communication. Basic to all participation is communication, which is by definition interactive. As students begin to cooperate, they continue to communication – often more regularly – and begin working together, although the intent is the individual students' learning.



Collaboration is different from cooperation. While it also involves communication, it leverages that communication into iterative dialog through which the group builds toward a common goal, a product that represents the collective expertise of a diverse set of individuals. Collaboration is most powerful when the individuals share a common goal but bring different expertise, experiences, and perspectives to the task. While individuals may learn along the way, the ultimate goal is the group's joint productivity toward that collective goal.

Community can be developed at all three levels. Some communities of interest, be they around a common interest in gaming, DNA testing, dinosaurs, Harry Potter, StarTrek, the Chicago Cubs, or other various topics, are very loosely formed, but still enjoy community interactions, commentaries, and learning around that common topic. We also often see communities in the form of study or peer editing groups spring up based on participation in cooperative groups – working together to advance each members' expertise. Communities with the strongest ties are typically collaborative groups. Such groups are committed to a common goal or project, dependent on each other's diverse expertise and experiences necessary to complete the project.

The online opportunities presented through such interactions connect students to communities beyond those in their locale. Mobile devices enable all three aspects of participatory learning – communication, cooperation, and collaboration. While communication is present in all participatory learning, the difference between cooperation and collaboration lies in the degree to which the outcome is mainly benefitting the individual or the group.

Ways in while mobile devices provide affordances to participatory learning
Mobile devices can advance participatory learning by leveraging a number of affordances related to the devices. The affordances of COMMUNICATION AND ENAGEMENT IN FORMAL, ONLINE LEARNING, are just two that explicitly advance participatory learning. For more detail see section on affordances.

Examples where personally-owned devices advance learning:

Example 1. Back channeling. When students are listening to lectures (teachers or other experts), observing an event, analyzing a data set, dissecting a frog, or watching a movie in class, they can also be back channeling their reactions, questions, perspectives, insights, key findings, and monitoring the flow of information in the channel. The teacher can facilitate this in a number of ways:

- Prepping students by using the backchannel for student questions prior to the exercise – with the intent having the students use the backchannel to find evidence that helps answer the questions
- Periodically stopping the all-class activity to focus on the backchannel discussion/comments
- Monitoring the backchannel and adding probing questions periodically
- Post event, asking students to identify key questions or issue they are interested in pursuing and then creating those five new backchannels to continue the discussion online, with the online group summarizing their thinking at the end of the postings. If all students have 24/7 Internet access, such discussions could be continued beyond that class and into the evening away from school

Example 2: Favorite renditions of Bach Fugue. A teacher in a middle school is intent on engaging her students in deep analytic analysis of music – both compositions and renditions. She introduces the idea of "American Idol," but with a twist. Student use rubrics as the basis for their judging of classical composers, middle school garage band, and, yes, versions of a Bach Fugue. They simulate the TV program using their smart phones to electronically send in their scores based on the rubrics. They are riveted to the display as the votes come and thoroughly enjoy explaining, discussing, and debating their selections. http://www.pbs.org/teachers/innovators/gallery/2010/entries/558/.

Example 3: Become a person in ancient Athens. A teachers sets the following scenario: It is 490 BC and news has reached Athens that the Persians have arrived in Marathon, a small town 25 miles away. There is great debate in the city as to how to respond. Should the Athenians ask for peace, attack immediately, or wait for help from the Spartans before attacking? You may chose to be a man, a woman, a slave or a 12 year old boy or girl. What is your opinion on the above scenario? How can you affect the decision that Athens must make?

Suggested Applications:

- Ancient Greece - http://www.quizicals.com/apps/ancient_greece_history/ -$0.99
- Greek Gods Free - http://itunes.apple.com/ca/app/greek-gods-free/id353022562?mt=8
- Comic Lite - "mobile version of Comic Life", users can create comic strips from images
- Strip Designer - user can use multiple images and add to a single comic book page
- Showcase / iMovie (for iPod Touch or iPad2) - these are video production tools
- Voice Memo - remember to create a "Smart Playlist" on the Digital Commons (syncing machine) for each student where the labeled audio podcast can easily retrieved.

Suggested formats:

- Create a podcast outlining the debate in the assembly. Work as a team - produce a sound track on one device, record on the other. (Voice Memo / Showcase / GarageBand / iMovie)
- Create a graphic novel that explores your decision and/or the events in Marathon (Comic Lite, Strip Designer)
- A play that you write and record.
- Comic poets often influenced political decisions by influencing public opinion.
- Create and illustrate a poem.
- A conversation at the family dinner table.
- Soldiers talking about the situation.
- A story about your experiences with hyperlinks (regardless of the role you have selected).
- A debate by the Greek gods over whether or not to be involved.

Example 4: Connections between teachers and students. At St. Joseph High School in Edmonton, the self-directed approach to learning affords students the ability to progress through the curriculum at their own pace, meaning students are not all working on the same subject matter at the same time. This teaching method requires a large amount of 'coaching' from the student(s) Teacher Advisor. To do this, we have employed an applet on the iPad called TextPlus. This application allows the teaching staff to stay in regular contact with their students via the student(s) cell phone. Students and faculty developed a cell phone etiquette policy that all students and faculty must adhere to (See attached file). This policy affords students and faculty to use cell phone technology for productive, school related business. The iPad has also provided our teachers with an increased sense of mobility in our building. Utilizing the wireless capabilities of our network, teachers are able to access their district e-mail. Teachers are also using the iPad to keep up on the data entry of their marks, attendance and anecdotal documentation on student progress. This affords the student near real-time feedback on the work that is being completed.

Benefits of Participatory Learning

- Research finds that students who learn in cooperative or collaborative groups outperform students who work individually or competitively, (e.g., think, pair, share; peer editing; constructive controversy, etc.)
- Students' social-emotional engagement will be increased when he/she is actively participating in a team or group. Increases in social-emotional engagement contributes to cognitive engagement and reduces the likelihood that a student will drop out of school.
- MORE...

Top 3 Actions Educators Can Take to Leverage Mobile Devices for Participatory Learning

1. Collaboratively establish rules of etiquette for online communication within your classroom and beyond.
2. Establish long-term groups or pairs in your classroom(s). Provide time for students to work in these groups or pairs each week. Establish common digital tools that enable collaboration and communication within the group. For example, establish blogs or wikis in which the group/pair documents their progress on class work each Friday.

3. Establish a system of communication among all members of your class. Establish Facebook-like profiles highlighting their interests and areas of expertise in your subject area of study. Provide formal learning opportunities for students to tap each other's expertises and areas of interest, e.g., online discussions, team projects, research projects, etc.

Personalization

Personalization of learning means accommodating learning to take into account the student's personal interests, personal needs, and personal regulation of learning.

The learning sciences has shown how the intrinsic motivation and engagement of students in deep learning can be enhanced and learning can be improved by providing students choice – and a modicum of control in their own learning (McLoughlin & Lee, 2008). This is the basis for inquiry learning, authentic learning, and project/problem-based learning (Edelson, Gordin, & Pea, 1999; Bransford, et al., 2001). The intent is to provide learners with choice as to how they bring meaning to and make sense of the studies they are responsible for in schools. McLoughlin & Lee (2008) discuss ways in which such personalization can be accommodated through a choice in topic, resources, assignments, and medium in which students learn. Personalization can be supported in each of the following areas.

- Content: Although the curriculum standards determine the courses of study for students at each grade level, there are opportunities for student choice with respect to what subtopics he/she focuses on, as well as opportunities for students to investigate content rather than have it presented to them in a particular sequence. As students create, discuss, exchange, and revise their perspectives based on their research, their intrinsic motivation increases because they are asking the questions that are being investigated and answered. That said, teachers should ensure that student learning is scaffolded and, in some situations, sequenced to ensure efficiency of learning.

- Assessment: Multiple assessments should be triangulated for formative and summative purposes. The student should be involved in self-assessment of his/her own learning, cognizant of expectations, able to track their own progress over time, and willing to reflect on his/her own learning and adjust behaviors accordingly.

- Communication: Again, the student should be provided options for formal and informal communication with peers, communities of interest, and the teacher. Options can include the modality (i.e., visual, verbal, auditory, text, etc.) used, and the media tools (e.g., blogs, wikis, chats, web pages, PowerPoint, Prezi, etc.).

- Learning Processes: The cognitive sciences suggests that learning approaches should tap into the student's prior knowledge, balance building toward automaticity with higher order thinking, and situate learning in inquiry-based, real-world, authentic experiences when possible. The learning strategies used with students should be differentiated to meet and accommodate individual styles, differences.

- Learning Tasks: The learning tasks assigned to students should include a balance between building for automaticity and open-ended, inquiry learning. The latter should be learner driven, authentic, and experiential.

- Resources: The depth and breadth of online resources should enable teachers to accommodate student choice in media rich, interdisciplinary resources that inform their studies. Students should be independently able to search for and find appropriate alternative resources in addition to those provided by the teacher.

- Scaffolds: Students should have multiple formal networks to rely on and seek help from in their pursuit of their studies.

This personalization should increase the probability that the formal learning within schools will extend into the informal learning outside of schools.

Examples where personally-owned devices advance learning through personalization:

Example 1: Personalizing Internet Safety. The Anson School in Brent (UK) wanted to keep their students safe online. They asked students to create a digital profile of themselves in a secure site. Then they discussed the principles associated with online safety. Following that discussion they critiqued their profiles in teams of three and then updated them to meet those safety standards. See: http://www.handheldlearning2009.com/awards/the-finalists#p.

Example 2: Personalizing the study of science. Calgary Catholic offers an independent and student driven science program in one of their schools where the manner in which students achieve the learning outcomes is really up to them. The goal is to provide the student with different tools that may lead to the same result. The use of the laptop is one such tool. The following scaffolds are established to help students use mobiles effectively to augment their learning:

- Embedded links to purchased interactive objects for Biology, Chemistry, and Physics concepts into learning guides for the Science 10 curriculum.
- Learning guides in D2L - Any time and any place access wherever there is internet. E.g. forgotten books, away on vacation or training etc.
- As the student works through the learning guide, they are provided with a number of links that might help explain certain topics.
    - Interactive tutorials for each unit
    - A simple click will take them directly to that link.
    - Learning guide explains that these links are not mandatory.
    - Students who have perfect understanding of that content do not have to view them.
    - Students who are struggling with that content have one more resource at their disposal.
    - interactive tutorials for each unit licensed through a vendor called yteach,(for student it is ylearn)
    - The particular yteach tutorials chosen from an available thousands of tutorials
    - Selected ones chosen because they relate directly to the science 10 curriculum and cover topics that the students often have trouble with.
    - We have made a point of advertising these to our science 10 students

Example 3: Personalizing the school experience. This past year, the teaching staff at St. Joseph High School embarked on a new initiative involving the use of iPads. St. Joseph High School employs a non-traditional delivery method, the Personalized Self Directed Learning (PSDL) program. The PSDL program depends on constant communication between teaching staff, students and parents. This coming June will mark the end of the first year where every teacher at our school (73 teachers) were assigned iPads to help teachers communicate more efficiently and to aid them in the delivery of their lessons. This year, the new grade ten students have been encouraged to take part in a study where we will be monitoring the impact of the new applet. As part of their registration package students have been invited to purchase an iPod Touch as part of their registration fees. The school will be working with these students over the next year to assess the impact these new tools can have on their learning. The school has employed the services of additional programers to develop an applet (St. Joseph) that is currently available from the App Store. The applet is designed to function as a virtual student agenda. The deployment of this applet is being released in three phases. The first phase, released February 2011 was intended as a marketing tool for new prospective grade ten students. Phase two, anticipated release is June 2011 will allow students to plan their high school educational plan. It will also function as a tool for student orientation so that students experience a smooth transition to the PSDL high school experience. The third phase of the applet's development, anticipated launch is September 2011, will allow students to access a variety of learning tools to aid in their studies. Students will be able to access podcasts, video and exam preparation resources through the applet. By September 2011 all courses offered at St. Joseph will employ a virtual classroom experience, the podcasts being created are designed to be accessed by any device. It is our hope that these tools will be accessible by any wireless device regardless of brand, Apple, Android etc.

Benefits of Personalization

- Research finds that students who are provided choice tend to increase their academic achievement levels by one grade.
- Personalization means moving toward student-centered learning. When students interests are taken into account, student needs and preferred learning styles accommodated, students are provided opportunities for inquiry learning, and options provided students for how they represent what they learned, intrinsic motivation and engagement increase, attention increases, and thus deep learning increases.

•Successes: We believe that we have given the students more tools to achieve success. They can be accessed at any time, and they don't always need to go see a teacher to figure things out.
•Challenges: I don't believe that these tools are being accessed as often as they could be. Students who are rushing through their work, often don't access extra resources (even though they should). These are undoubtedly used more often by the conscientious students. The point is that the tools have been provided. What the student does with them is up to them.

Top 3 Actions Educators Can Take to Leverage Mobile Devices for Personalization

1. Inherent in the use of student-owned devices, is the potential for 24/7 uses of the devices. The student is likely to extend his/her formal learning into the informal setting outside with the device. The teacher can scaffold this by providing choice and accommodating interests of students in assignments and projects. When students are interested they are much more likely to continue working on the topic outside of class and outside of school.
2. Increasing the self-directed learning of students will increase the student's capacity for reflection and integration of their interests into schoolwork.
3. Establish a process for learner-focused feedback and assessment that instigates self-reflection and provides students with deep insight into ways in which he/she could improve.

Productivity

Productivity means that students produce something with what they learn, with the intent of demonstrating their level of learning.

The technology tools of today provide youngsters with productivity tools equivalent to those of professional working in the field. Students are used to participating fully online, sharing their compositions, video and audio files and other products through Facebook, YouTube, or other sites that enable them to display their work publicly. In this context, it is not surprising that students place little value in rote learning of factual information. They want to learn in their own time, doing something that matters – and that typically implies products.

Increasingly teachers are recognizing the learning potential in student creation of knowledge. As they do, there is also a radical shift in how work gets done in the workplace and across social networks. Students involved in social networking are engaging in distributed learning. One of the keys to productivity is tapping networks to for the resources, advise, and expertise required to get the job done. Productivity should be viewed at two levels, the individual level and the distributed/group level. While it is important that students be held accountable for some work that is accomplished strictly by them, it is equally important to hold them accountable for productivity of their groups in producing knowledge.

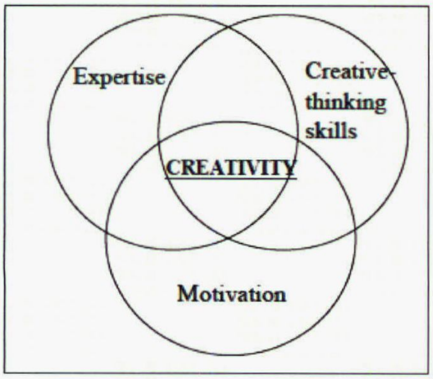
According to McLoughlin and Lee (2008) the four aspects of productivity are learner-created content, contribution to knowledge, generativity – the capacity to generate new ideas – and creativity/innovation. The first two are addressed within situated, authentic learning. Authentic learning situates students in learning contexts where they encounter activities that involve problems and investigations reflective of those they are likely to face in their real world professional contexts.[7] In describing authentic learning, Herrington and Oliver (2000) identified the following nine characteristics of authentic learning:

1. Authentic contexts that reflect the way the knowledge will be used in real-life
2. Authentic activities that are complex, ill-defined problems and investigations
3. Access to expert performances enabling modeling of processes
4. Multiple roles and perspectives providing alternative solution pathways
5. Collaboration allowing for the social construction of knowledge
6. Opportunities for reflection involving metacognition
7. Opportunities for articulation to enable tacit knowledge to be made explicit
8. Coaching and scaffolding by the teacher at critical times
9. Authentic assessment that reflect the way knowledge is asses in real life [8]

These characteristics make the basis for teachers to plan and design learning environments where PODs could be used in their different subject areas and specializations to advance learner productivity. Generating rubrics or other standards of excellence for such product has been found to be instrumental in high quality productivity and knowledge construction.

The other aspects of productivity, generativity, and creativity/innovation are addressed within the literature on creativity. Creativity refers to the ability to produce products or processes that are novel as well as useful or valuable in some way. The capacity for generativity is crucial since creative people typically generate numerous concepts and have the perseverance to stick with that generative process until a creative idea (original and with value) emerges. Intrinsic motivation, or a person's internal desire to do something is more essential for creativity than the extrinsic one, and people will be most creative when their motivation comes out of their own interest, not by the external pressure.

Figure 2. Components of creativity (Amabile, 1998)



Researchers in education suggest that teaching for creativity can be achieved through by establishing learning environments in which the students' natural creativity can thrive (Lovless, 2002). A creative product is often developed through the unique combination of divergent ideas. Therefore, life experiences in a variety of areas, and the ability to hold divergent ideas in one's mind for a period of time is an important aspect of creativity and innovation. Handing over a modicum of control to the learner is another design consideration of the creative learning environment aimed at encouraging motivation (Candy & Edwards 2000). The student must also be able to evaluate the multiple ideas generated, choose the best option, and develop it into a process or product. At the end of the day, it is the resultant product or process that will be deemed creative.

Examples of productivity

Example 1: Reengineering Systems. Students used iPhones and computers to research a nearby turnpike and developed a mathematical model showing the roadway as a system with flows and stocks. Then they used the iPhones (Both Skype and voice) to interview turnpike officials, took notes on the computers, and downloaded usage data sheets from the officials. Each "consulting group" of students developed a proposal with graphics to present to officials in response to an request of proposal (RFP) on how the public transportation system could improve the efficiency of the turnpike (e.g., toll booths, vehicle entry and exiting, lane structures, additional exits, etc.) all based on data. http://www.pbs.org/teachers/innovators/gallery/2010/entries/594/.

Example 2: Cold War – Historical Thinking. (Rocky View Schools) IN a Social Studies 30-1 class, the topic of historical thinking in the context of the study of the cold war is approached, in part, through the students' production of an historical scene investigation for the Cold War. Students were asked to conduct an historical investigation surrounding a question associated with the Cold War. Utilizing the website "Historical Scene Investigation" from the College of William and Mary (www.web.wm.edu/his), students created a website (using weebly.com) to investigate some of the following questions:

- How did the use of propaganda in pop culture perpetuate hostility during the Cold War?
- What conditions led to the existence of the "Hotline" between Washington and Moscow?
- Was there a clear victor in the global domination for nuclear arms?

Students provide background evidence, physical evidence and witness statements to back up their investigations. They provided primary and secondary sources and came to a conclusion that supported or refuted their investigative questions. The use of PODs was essential in building the websites. The students not only found their primary and secondary evidence on-line through various archival sites but also built the site on-line as well. The ability to access the material at school or at home and have a seamless transition in the transfer of their information was key.

Benefits of Productivity through PODs

- Research by Dr. Fred Newmann (2001) finds that students who engage in intellectually stimulating assignments that result in product development earn higher grades than those students who are not involved in authentic learning
- Research on students' knowledge construction by researchers suggest there are reciprocal benefits from the involvement in group knowledge construction, to the individual and the group.

Top 3 Actions Educators Can Take to Leverage Mobile Devices for Productivity

1. Develop in students the capacity to make informed choices on selecting digital tools appropriate to the specific knowledge construction task.
2. Enable students to conduct authentic learning tasks.

Section 3: A Range of Use

Student-owned devices and the web and ICT tools provide tools for a range of uses in the learning environment. The power of the POD is in how and for what purposes it is used. For example, the use of a tablet computer, together with Twitter, provides opportunities for back channeling, group discussions, online discussions with experts, journaling, and remote access to conference sessions – to name a few. Whether or not the option is capitalized on depends on the nature of the student work assignment, and the scaffolding and context before, during, and after the activity.

This section of the guide provides insights into the key options provided by unique combinations of the student-owned device and ICT/Web tools. The following taxonomy includes a range of options that could be at the students' and teachers' fingertips through PODs.

1. Communicate, collaborate, and participate
    a. One-to-one messaging (email, texting, IMing, sending visuals, etc.)
    b. Conferencing (video and audio)
    c. Exchange files
    d. Posting, blogging, microblogging
    e. Social Networking
    f. Participating in communities of interest
    g. Extend experiences globally/culturally

2. Engage in formal, online learning
    a. Take online courses
    b. Participate in blended courses
    c. Engage in short cycle projects

3. Access/interact with resources
    a. Locate resources
    b. Conduct searches/research
    c. Explore/interact with content
    d. Build automaticity (stimulus/response/feedback)
    e. Interact in games
    f. Use simulations/learning objects
    g. Augment homework through web resources

4. Visualize/Represent
    a. Viewing, interpreting, or creating presentations
    b. Mind mapping
    c. Visualization of complex ideas
    d. Video-streaming
    e. Video production
    f. Sharing visuals/productions

5. Construct Knowledge

   a. Engage in active/immersive learning
   b. Ask/answer essential questions
   c. Think creatively and critically
   d. Use critical thinking strategies
   e. Produce cogent compositions/productions

6. Assess Progress
   a. Use real-time feedback loops
   b. Participate in polls/surveys
   c. Self-assess
   d. Participate in peer assessment
   e. Assess in context of distributed intelligence
   f. Participate in embedded assessments
   g. Use "next generation" assessments

7. Organize and manage (i.e., self-direct and personalize) learning
   a. Plan, organize, calendar, etc.
   b. Seek help as needed
   c. Access prior knowledge
   d. Develop interest and intrinsic motivation
   e. Reflect on own learning

8. Analyze data and solve problems
   a. Interpret data
   b. Collect and store data
   c. Analyze/manipulate data
   d. Compose/produce products
   e. Geotag data

Teachers interested in maximizing the use of student-owned devices should consider the applicability of each type of use to their situation – paying close attention to the research basis for each – and begin weaving choice types of use into their lesson designs.

Sample Range/types of use on following pages (2 page spreads)

Others will be developed if Jurisdictions find them valuable

#4: Visualize/Represent

(Question: do you like this subsection? Should others be built out?)

Definition

Representation/visualization affordances are uses of the technology devices to view, discover, experiment with, represent, modify, create, or produce ideas and concepts through still or dynamic imagery. That imagery might include stills, graphics, video, animation, icons, sketches, diagrams, or simply words (Song & Fox, 2009). As a tool, these devices create context for supporting 'learning by doing' (Jonassen, 2008). The functionality of the tool that enables this classification of affordance includes:

Research

Research suggests several reasons why teachers would want to use visualization affordances in every lesson. The most important is due to physiology of the brain. Working memory – the type of memory where all human's thinking is done, is very limited in capacity, yet it accommodates two types of thoughts or representations, text/sound and visual. It allows up to 7 (plus or minus 2) text/sound representations and up to 4 visual representations. Persons who are optimizing their cognitive functions are using the capacity of both types of representation. Thus teachers who want to scaffold their students learning will engage those students with both text/sound and visual representations of ideas and concepts ((Bransford, Brown, & Cocking, 2000; Clark, Nguyen, and Sweller, 2006; Pea, 2004; & Mayer & Moreno, 2003).

Relevance for teaching & learning

The table provides a list of learning affordances provided by various types of student-owned devices. The list is not intended to be comprehensive.

Visual/Represent Affordances	Laptop	Tablet	Smart-phone	ICT & Web 2.0 Tools & Applications
Viewing or creating presentations	■	■	■	**YouTube** (www.youtude.com) is a site for viewing, creating/uploading, and commenting on video clips
	■	■		**PowerPoint** –Microsoft software to create presentations
	■			**Prezi** (www.prezi.com) tool to create online presentations
			■	**Yodio** (www.yodio.com) Tool for audio creation and up loader that allows the user to create personalized voice to photos by using your phone number to record.
	■		■	**Vodcast (http://www.apple.com/itunes/podcasts/)** Tools for viewing and creating video files for uploading, sharing, and broadcasting.
Mind mapping	■	■	■	**MindMeister** (PC/Mac, iPhone, iPod Touch, iPad, Google Apps) Web-based collaborative mind mapping tool.
	■			**Bubbl.us** (http://bubbl.us/) is an online concept mapping program (PC/Mac)
	■			**Dipity** (http://www.dipity.com/) Tool to create interactive timelines
Visualization of complex ideas		■	■	**Atom in a Box** (http://daugerresearch.com/orbitals/) An app to help visualize the Hydrogenic atomic orbitals.

Visual/Represent Affordances	Laptop	Tablet	Smart-phone	ICT & Web 2.0 Tools & Applications
Visualization of complex ideas cont'd		■	■	**Roambi Lite** (http://www.roambi.com/) An app to visualize data from Excel spreadsheets on your iPhone; visualizations include pie charts, bar graphs & flip charts.
	■			**Many Eyes**. (http://www.manyeyes/) Tool to create, view, and discuss visualizations of data sets, including graphs, charts, maps, word clouds, scatter plots, tree diagrams, etc,
	■			**Gapminder** (www.gapminder.com) contains U.N. data, and enables users to design 2- dimensional charts and then visualize the changes in these charts over time for various countries.
	■			**Google Chart Tools**
Video production	■		■	Editing software (e.g., iMovie, iPhoto,…)
Sharing visuals/ productions	■			Videostreaming Flickr YouTube (www.youtude.com) Site for viewing and creating/uploading video clips

Vignettes

	Visualization/Representation Examples
1.	Students produce a travelogue of the history of their city that is triggered on a user's smart phone by proximity to the geotag of the historical location. (Uses GoogleEarth.)
2.	Students who need help with Algebra problems can access the Khan Academy to watch how specific types of problems are solved. http://www.khanacademy.org/
3.	In pairs, students create mind maps of the 12 concepts they have learned in the six-week unit they are completing, using the map to show their understanding of the inter relationships among and between the concepts.
4.	Students create vodcasts representing a message of their choice that they want to convey to their local legislations regarding the environmental issues they have been studying.
5.	Elementary students use ebooks with clickable word definitions, pronouncations, translation into a second language, and passage reading.

Sources

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Sweller, J. (2002). Visualisation and instructional design. Paper presented at the International Workshop on Dynamic Visualisations and Learning, Tubingen.

#1: Communicate, collaborate, and participate (under development)

#2: Engage in formal, online learning (under development)

#3: Access/interact with resources (under development)

See above for #4

#5: Construct knowledge (under development)

#6: Assess Progress (under development)

#7: Manage and self-direct learning (under development)

#8: Solve problems using data (under development)

Question: Do you want to build out the rest of these ranges of use categories?

Section 4: Digital Content

The expansion of content in classrooms to the digital opens the classroom to the world – with all its potentials and pitfalls. Leveraging and managing such resources is the next big challenge for educators.

What is digital content?

Digital content is defined as content that is either in digital format or is accessed digitally. Thus it includes a wide range of resources including the insights a child gets from reading text, viewing images, and clicking on hot links in an ebook, the auditory information in a podcast, the textual and graphical information on a website, and visual images in a Flickr series, students' experiences in an augmented reality system and the information students gain from a Skype interaction with a remote expert in a field of study. The possibilities are endless. The right combinations can lead to increased engagement, motivation, and excitement on the part of students and teaches that leads to deep learning and the extension of that pursuit of knowledge from the formal school environment into the students' informal learning environment beyond the walls of the classroom.

Digital content is the provision of learning resources in digital format, including both off-line and online resources.

Digital content can be classified into the following types and may include commercial and non-commercial works, including those from students and educators:

- Digital textbooks
- Learning objects
- Web sites
- Multimodal resources (e.g., video, stills, presentations, etc.)
- Simulations, Models, and Augmented reality
- Data sets (Visualization of such data)
- Interactive communications with experts (e.g., Skype, videoconferencing, etc.)
- Online news media (audio, text, visual, multimedia, etc.)
- Others

Digital Content for PODs

The decisions a school jurisdiction makes about devices directly impacts the capacity of the student to access digital content, and the range of digital content options open to the classroom teachers in that jurisdiction. The major issues about digital content and PODs relate to accessibility, copyright, license, Internet access, standards/media literacy, and curation.

Accessibility is the capacity of the POD to access, process, and display the digital content. Some issues include:

- Size of display. In some cases, students and teachers are not able to read or decipher digital content due to the size of the display. This is especially problematic when there is a large amount of text, when complex graphics/text are included, and when the device doesn't allow for magnification.

- Technical capacity of the device to run the application in which the digital content was developed. For example, the iPad cannot run digital content developed in Flash, and smart phones do not allow users to run full versions of Office, although they can read documents from the application.

Copyright issues are not unique to PODs. In fact, the issues around updating copyright laws to reflect the Internet-based knowledge economy is currently debated internationally, and the need for international reciprocity is noted. In the meantime, sites such Creative Commons have sprung up. Creative Commons is a U.S. based non-profit established to minimize barriers represented by archaic copyright laws applied to digital content. It seeks to minimize legal, technical, and social barriers to sharing and reuse of educational materials[iii] through attribution licenses to "make textbooks and lesson plans easy to find, easy to share, and easy to customize and combine — helping to realize the full benefits of digitally enabled education."[iv] The use of such licenses allows the sharing and remixing of educational materials provided attribution is provided – while protecting the authors' rights. Copyright issues are typically addressed in an acceptable or responsible use policy signed by students and their parents/guardians. Typically they address the following:

- Student use of copyrighted materials
- Student productions-including text, audio, images, video, and multimedia:
  - Avoidance of plagiarism
  - Appropriate citations
  - Appropriate attribution and use of materials in remix
  - Internet safety related to student identification

Licensing refers to the agreements inherent in any purchase of digital content by the schools for use by students and teachers. Again, these issues are not unique to PODs, but apply to all use of digital devices by students. However, as PODs become more universal, the schools do need to ensure that the digital content licenses purchased by the school include access by students from their PODs, and that students are informed as to the restrictions on use of such materials.

Privacy of students and faculty is paramount as schools begin using cloud computing resources for student and faculty productivity, communication, and document sharing and storage. Ultimately, it is the responsibility of schools to protect the privacy of students in the use of school-sanctioned Internet sites. The question facing schools is whether or not companies that maintain sites where students are logged in for school work are maintaining the privacy of those works.

Internet access both in school and beyond the school day is critical if students are to leverage fully their PODs for learning. This raises the issue of the school's responsibility for Internet access beyond the school day for both PODs and for school-owned devices provided for students who cannot afford a POD.

Standards refer to standards associated with the accuracy, currency, and reliability of digital content and sites and experts as sources of digital content. One of the keys to high quality digital content in todays' world is the capacity of teachers and students to ascertain the quality of sites they choose to use as sources for digital content. Again, the implications for PODs are not substantially different from the use of all devices. In all cases, schools have the responsibility of developing digital literacy and high quality research skills in students and teachers that result in informed use of digital content.

Curation is the editorial grouping, organization, and selection or aggregation of digital content resources by a person around a topic. These curated playlists[v] for digital content typically are intended to include the most relevant, valuable content on a topic from multiple, often diverse sets of sources. The difference between a curated playlist and a Google search is in the human curation of the playlist versus the automated search by Google. While some librarians and teachers are creating such playlists now, the need for such works will grow as the volume of content increases exponentially.

Research:

The following table outlines the issues associated with digital content on various types of PODs.

Topic	Issue	Implication(s) related to PODs
Accessibility		
Copyright		
Licensing		
Internet access		
Standards/ Media Literacy		
Curation		

Example 1: Using iPods to Support an Understanding of Japan in Grade Eight Social Studies.
(Note the range of digital content used in the example.)

Program of Studies: 8.1.5 analyze the effects of cultural isolation during the Edo period by exploring and reflecting upon: How did the shogun use the feudal system and the hierarchical social classes to maintain control of Japan. Each student had his/her own iPod Touch synced through a teacher controlled iTunes account. These mobile devices were used to research and represent student understanding.

1. Students can use their textbooks, learning commons and the devices to research Japanese feudal society.
2. Students draw/create their own images of the levels of Japanese feudal society through a drawing app called Doodlebuddy. Once created, these images are saved to the iPod's camera roll through simultaneously pressing the power button and the home button.
3. Students build their "game" within the app called Sketchnation. They use their research and Doodlebuddy images to do so.
4. Assessment is based on the provided rubric. Students have helped develop this rubric. Students assess one another's game through game play and demonstration. A document camera was used to project device content on the SMARTboard so all could celebrate their learning.

Apps Required:

- Doodlebuddy-This free app allowed students to draw/create digital images
- Sketchnation-This app ($0.99) allowed students to create their own digital games representing the levels of Japanese feudal society.

Example 2: Edmonton Public: English

Laptops are used to produce text documents using either installed word processors or Google Docs. The research to support those documents can be largely done on the laptop as can any quick questions that come up in discussions pertaining to the assignment. Online dictionaries or thesauri can be accessed as well. Because of the collaborative nature of Google docs, the teacher can provide support to students in areas such as vocabulary development and analysis of writing style. Text to speech readers are used to assist in novel reading as well as to provide assistive support during assessment.

Example 3: **Cold Lake High School**
Subject: Language Arts 9
Assignment Type: Culminating Activity

Create a movie trailer that illustrates your understanding of the major themes of Sameness, Memory and Choice in *The Giver* by Lowis Lowry.

Link to Assignment: http://languagearts9.pbworks.com/f/Giver+Movie+trailer.pdf

Assessment of the Final Project is in the following areas:

1. Storyboarding/Planning
2. Editing- Communicating
3. Storytelling/Illustrating of Themes
4. Working in a Group

Web 2.0 Software Used in Example 3

1. Blogger- Students embedded their trailers on their class blog
2. Aviary- Myna. Online audio editor to create original music

Devices Used in Example 3

- Kodak Zi8 video cameras
- Canon FS200 video camera
- Various Student owned point and shoot cameras
- Various iPhones and video capable iPod touches

Benefits of Digital Content

- XXX
- YYY
- ZZZ

Top 3 actions jurisdictions can take to leverage PODs to access and Use digital content

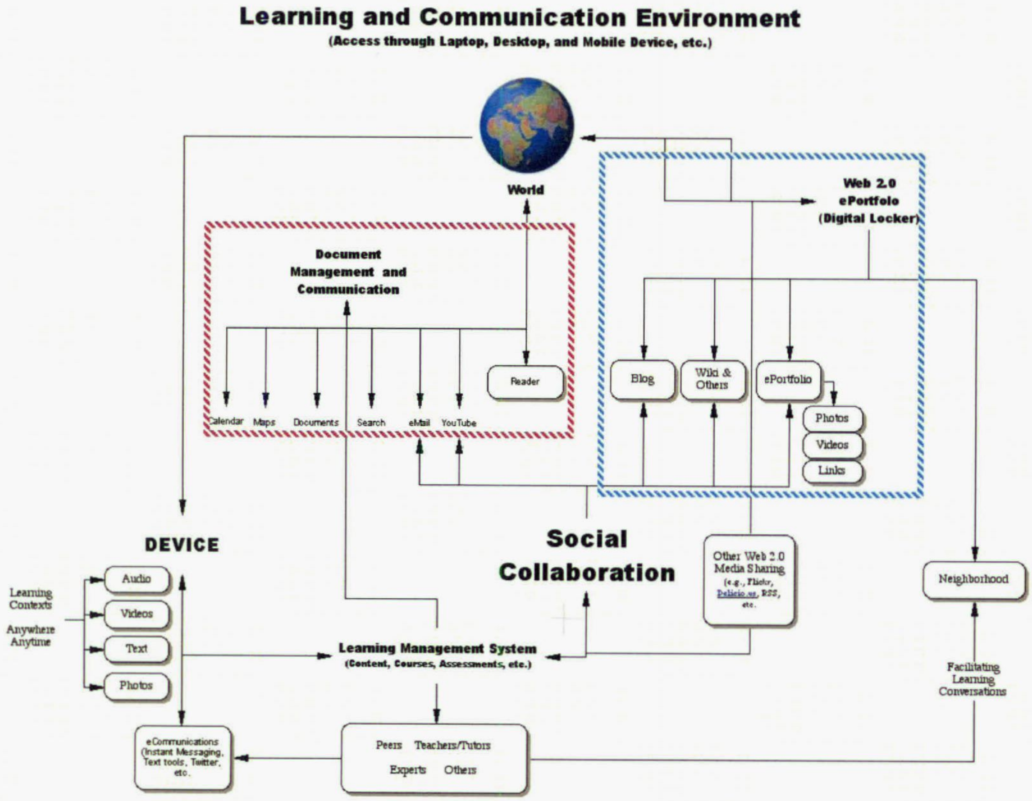
1. XXX
2. YYY
3. ZZZZ

Section 5:
Access and Infrastructure Considerations for POD

The intent of this section is to investigate the specific implications of PODs related to student access and associated infrastructure considerations. Readers should note the availability of *The Wireless Local Area Network (WLAN) Best Practices Guide*, which was prepared by the Stakeholder Technology Branch from Alberta Education. It provides a comprehensive guide to wireless computing.

This section will provide guiding questions, planning templates, and examples of various models used in Alberta jurisdictions for accommodating students' personally-owned devices.

A Visual representing the basic components of the network as modified to accommodate PODS (sample to be replaced by Alberta Education jurisdictions):


Learning and Communication Environment
(Access through Laptop, Desktop, and Mobile Device, etc.)
World
Web 2.0
ePortfolio
(Digital Locker)
Document
Management and
Communication
Reader
Calendar
Maps
Documents
Search
eMail
YouTube
Blog
Wiki & Others
ePortfolio
Photos
Videos
Links
DEVICE
Social
Collaboration
Other Web 2.0 Media Sharing (e.g., Flickr, Delicio.us, RSS, etc.
Neighborhood
Learning Contexts
Anywhere Anytime
Audio
Videos
Text
Photos
Learning Management System
(Content, Courses, Assessments, etc.)
Facilitating Learning Conversations
eCommunications (Instant Messaging, Text tools, Twitter, etc.
Peers
Teachers/Tutors
Experts
Others

Question 1: How will the students with PODs access the district infrastructure from inside the district? From outside the district?

Considerations:

- Cost Analysis for PODSs: the whole picture - how much will it cost, ongoing costs, maintenance costs, human capital cost, supplying reliable access to all areas of complex buildings, cost of dense coverage, what is a reasonable amount of students per access point?
- Managing bandwidth for the PODs - should students have individual limits on bandwidth (Axia supernet arrangement is expensive compared to, say, Shaw 1GB service)?
- Adoption rate - what is the growth rate among students for adopting their own devices, how many devices should students be allowed to bring, how much bandwidth should students be allowed to consume, what is a reasonable amount of service to be provided to a student, what does the "network of the future" look like, what does a short, medium, long range plan look like?
- What are the implications for security and privacy for PODs, that are different from the school-owned devices. How will the jurisdiction address these implications?
- Does the district have a responsibility to provide Internet access in the community and/or homes of students? If so, how will this be accomplished?
- Support structures. What technical support/help desk systems will be needed to accommodate the PODs?
- What type of training do students and teachers need in order to understand fully the process by which the PODs connect to the system, and the privileges and responsibilities inherent in doing so?

Question 2: What are the potential barriers for seamless POD access through jurisdictional infrastructure? How will each be addressed?

- Human nature
- Time
- Information overload
- Expectations of 24 hours connectivity
- Distractions
- Trying to shorten the message.

- Fear of the new "lingo" (educators, parents, students)
- Reduction of options and choices.

Pros and Cons of PODs regarding the impact on infrastructure costs, security, privacy, support, and capacity.

Pros	Cons

Top 3 actions jurisdictions can take to leverage PODs use through smart access and infrastructure decisions.

1. XXX
2. YYY
3. ZZZZ

Resources/websites - http://livebinders.com/play/play/36989, http://its.leesummit.k12.mo.us/mobile_learning.htm, http://www.k12converge.com/?p=737 (an example of unintended consequences of PODs); http://livebinders.com/play/play/68154 (digital citizenship)

Section 6: Policy Considerations for PODs

A key question to be asked and answered by a district considering PODs is whether or not they need new policies to govern this new approach, or are there current policies that would apply?

1. **Access.** As the district establishes guidelines for PODs, the following issues are ones that the should be considered, for other Alberta jurisdictions have found that they did need new policies to address them:

New Access Policy for PODs	Comments

2. Responsible use agreements. In reviewing your AUP or RUP, are there new sections that need to be added to student and educator documents for signature?

New AUP or RUP Policy for PODs	Comments

3. **Digital Citizenship/FOIP.**

- This is an evolving area, with technology changing all of the time. Also, it is something that is completely relative, as digital citizenship can mean so many things.
- In some parts of the world, social networking is now part of the curriculum. What are the implications of this and how are they teaching these skills. Here's what UK is doing. http://www.telegraph.co.uk/technology/twitter/5050261/Twitter-is-put-on-new-primary-school-curriculum.html

Sample definitions:

- *"The norms of appropriate, responsible behaviour with regard to technology use." (Ribble and Bailey) To explore the nine elements of digital citizenship visit http://www.digitalcitizenship.net/.*

- *"Digital citizenship isn't just about recognizing and dealing with online hazards. It's about building safe spaces and communities, [having students] understand how to manage personal information, and about being Internet savvy-- using your online presence to grow and shape your world in a safe, creative way, and inspiring others to do the same." Digizen.org http://www.digizen.org.uk/*
- **May also be described as digital life skills (see** http://www.amazon.com/Digital-Community-Citizen-JasonOhler/dp/1412971446/ref=sr_1_2?ie=UTF8&qid=1302991328&sr=8-2/)

- Should digital citizenship be part of the health / CALM curriculum?

An example:

- Calgary Public has done a great job of fostering digital citizenship within their schools, through their Innovative Learning Services (http://www.innovativelearning.ca/sec-learntech/webaware-index.asp). CBE provides a number of steps for staff and students to ensure that outcomes are met. This is also listed on their public site for all to access.

New Digital Citizenship Policy for PODs	Comments

- FOIP questions: http://www.oipc.ab.ca/pages/home/default.aspx

New FOIP Policy for PODs	Comments

4. Digital Law, Internet safety and security. What issues do PODs raise that are different from the use of school-owned devices?

New Digital Law, Internet safety and security policies for PODs	Comments

5. Cloud computing. What issues do cloud computing/parallel systems raise that are different from the use of school-owned devices?

Cloud computing is Internet-based computing, whereby shared resources, software, and information are provided to computers and other devices on demand, like the electricity grid. (http://en.wikipedia.org/wiki/Cloud_computing, accessed October 7, 2010)

What do we already know?

- Clouds are web applications and storage server farmers that are available as a service through the internet via a compliant browser
- Cloud Computing is already being used extensively in business, education and government
- Clouds can be private; e.g. server farm for a business that houses secure company information
- Clouds are also publicly available (like Google)

What are the barriers?

- Patriot Act?
- Who owns the data?
- Is the data secure, traceable, and manageable if legal concerns arise?
- What level of student information should be in the cloud?
- Is it really free?
- What happens if it breaks?
- Acceptance?

New policies for PODs re: cloud computing/parallel systems	Comments

6. Issue resolution (re: loss/theft/insurance, network security, equity, internet safety and district liabilities)

New policies for PODs re: issue resolution	Comments

Section 7: Community Considerations

The communication with parents is tremendously important to ensure strong support from the home.

1. Outline a sample communications plan with parents:

2. What type of parent access will be available? Describe.

Need models from 2-3 jurisdictions.

Last saved: 5/4/11 7:44 AM

Section 8: Guiding Questions – Planning Templates

Sources

NOTE: The authors will merge the two sets of references/sources.

1 Norris, C. and Soloway, E. (2009) Pedagogy is king: Refocusing the conversation. In *TECH DISRUPTIONS* District Administration

2 Greenhow, C. *et al.* (2009) Learning, Teaching, and Scholarship in a Digital Age. *Educational Researcher* 38 (4), 246-259

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